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(54) **Mottled liquid detergents**

(57) A liquid detergent composition comprising a suspending base which comprises water, detergent active material and dissolved electrolyte material in an amount at least substantially equal to its solubility limit, and suspended particles, characterised in that at least some of the suspended particles comprise a carrier material and a pigment, both of which are substantially insoluble and non-dispersible in the suspending liquid.

The carrier material may comprise sodium triphosphate and/or bentonite.

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## SPECIFICATION

## Mottled liquid detergents

5 The present invention relates to mottled liquid detergents. Mottled liquid detergents are ones which contain particles suspended therein, which particles are coloured to impart a mottled or speckled colouration appearance.

10 The inclusion of visually distinct particles, e.g. in the form of globules, in a liquid detergent composition is already known from our British Patent Specification 1,303,810. However, these globules consist of a carrier core, which has been coated with a polymeric material, which is an undesirable additional cost in the manufacture of such globules. Furthermore, in order to be visually distinct, the liquid detergent base must be transparent, which imposes restrictions on its formulation.

20 We have now found that we can impart a mottled appearance to a liquid detergent composition if it comprises a suspending base comprising water, detergent active material and dissolved electrolyte material in an amount at least substantially equal to its solubility limit, and suspended particles, at least some comprising a carrier material and a pigment, both of which are substantially insoluble and non-dispersible in the suspending base.

30 Suspending bases of the required kind, especially when used to suspend builder crystals, are well known, for example as described in our European Patent Specification EP-A-38,101 (where the suspended builder crystals are sodium triphosphate).

35 The suspended particles may all be those of the kind comprising the carrier and the pigment (hereinafter called 'speckles') or some of the suspended particles may also be of any kind which are already known as suspendible in such media, e.g. ordinary builders such as plain sodium triphosphate crystals, or sodium aluminosilicates.

45 The carrier material may in whole or in part, be identical to all or some of the dissolved electrolyte material, or it may be a completely different material. In general, it can be any suitable material which can be granulated, as long as it is not soluble or dispersible in the liquid detergent composition. Preferably however, it should be soluble or dispersible in the wash liquor. For example, the carrier material may comprise sodium triphosphate. This may be used as the sole carrier material, or in admixture with clays such as bentonite. Clays such as swelling clays like bentonite may also be used as the sole carrier material, as long as they are not dispersible in the liquid composition, but preferably, dispersible in the wash liquor. The carrier material should not contain ingredients soluble in the suspending base because then they could increase the osmotic pressure in the speckles.

65 The speckles are preferably prepared by

granulating the pigment and the carrier material in any manner known per se. Optionally, the granules so obtained can subsequently be coated with a layer of the carrier material to adjust the particle size if necessary, and to provide for strong agglomerates of crystals, coated with a compact layer of e.g. hydrated sodium triphosphate.

70 The granules obtained by the above process may also be further coated with a suitable organic polymeric coating material such as polyvinyl alcohol to further improve their stability. The speckles should in general have an average particle size of from 1 to 1000 microns, preferably up to 300 microns.

80 The pigment to be used can be selected from one or more of any suitable pigments which are chemically stable and insoluble and non-dispersible in the liquid detergent.

85 Typical examples are blue pigments such as Graphol Blue (C.I.74.160), Ultramarine Blue 26 (C.I.51319), green pigments such as Sandorin Green 3BL (C.I.74260), red pigments such as Fire Red Graphol 3RL (C.I.15865).

90 The composition may contain speckles having one colour, or may contain different granules with different colours. In general, the amount of speckles incorporated in the liquid detergent may vary from 0.1 to 20% by weight, preferably from 0.5 to 15% by weight, and particularly preferably from 1 to 5% by weight of the total liquid detergent composition.

100 Compositions according to the present invention preferably also contain other usual ingredients such as enzymes, bleaching agents, bleach activators, soil-suspending agents, enzyme stabilizing agents, fluorescers, germicides, inorganic salts, buffering agents and so on.

105 These liquid compositions can be used for fabrics washing, but they can also be of the type used for hard surface cleaning. The mottled appearance is readily noticeable if the products are packed in a transparent bottle, but they can also be packed in non-transparent bottles, the mottled appearance then being visible when the liquid detergent is dosed in the wash bowl or in the dispenser of a washing machine.

115 The following examples illustrate the invention.

*Example 1*

120 200 g. of anhydrous, granular sodium triphosphate and 1 g. of Sandorin Green 3BL were granulated at 60°C in a pan granulator by slowly spraying 150g of a 15%-aqueous solution of sodium triphosphate onto the mixture of the granular sodium triphosphate and pigment. The coloured speckles thus obtained were added at a level of 3% to each of the aqueous liquid detergent compositions described in the Examples of our published European patent specification 0,038,101, which

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contains a level of sodium triphosphate above its solubility in the liquid composition. The speckles were stable in these products when stored for a period of three months at room temperature.

- 5 Repeating the above procedure, but using a soluble carrier material (sodium sulphate) and Red Graphitol 3RL, which mixture was granulated in a pan granulator at 60°C with the aid of 100g of a 49%-aqueous solution of sodium silicate ( $\text{SiO}_2/\text{Na}_2\text{O}=2$ ) gave speckles which almost instantly dissolved in the liquid.

#### Example 2

- 15 220g of sodium triphosphate hexahydrate and 1g of Blue Graphitol BL were granulated at 60°C in a pan granulator by spraying thereon 100g of a 15%-aqueous solution of sodium triphosphate. When dispersed in the liquid detergent compositions of Example 1 (without speckles) at 3%, the speckles were stable for three months therein.

#### Example 3

- 25 200g of activated bentonite and 1g of Sandorin Green 3BL were granulated in a pan granulator by spraying 150ml of a 15%-aqueous sodium triphosphate solution thereon. When 3% of the thus obtained speckles were added to the liquid detergent composition of Example 1 (without speckles), the following viscosity of the final product was measured: 2550 mPas at a shear rate of  $2.5 \text{ sec}^{-1}$ . The product without the speckles had a viscosity of 2250 mPas at the same shear rate. When 3% of the clay was dispersed in this product, at the same shear rate, the viscosity was 5100 mPas (all viscosities were measured at room temperature).

#### Example 4

- 40 10g of activated bentonite and 100g of anhydrous sodium triphosphate and 1g of Sandorin Green were granulated in a pan granulator by spraying 100g of a 15%-aqueous sodium triphosphate solution thereon. These speckles were stable for three months under the conditions as mentioned in Example 1.

#### Example 5

- 50 100g of activated bentonite and 0.5 of Sandorin Green were granulated by spraying thereon in a pan granulator, 100g of a 15%-aqueous sodium triphosphate solution. Subsequently, the thus obtained speckles were coated in the granulator by spraying thereon, 100g of a 15%-aqueous polyvinyl alcohol solution. The thus coated speckles were stable under the conditions of Example 1.

#### CLAIMS

- 60 1. A liquid detergent composition comprising a suspending base which comprises water, detergent active material and dissolved electrolyte material in an amount at least substan-

tially equal to its solubility limit, and suspended particles, characterised in that at least some of the suspended particles comprise a carrier material and a pigment, both of which are substantially insoluble and non-dispersible in the suspending liquid.

- 70 2. A composition according to claim 1, further characterised in that some of the suspended particles are other than those which comprise a carrier material and a pigment.

- 75 3. A composition according to claim 2, further characterised in that the other suspended material comprises a builder.

- 80 4. A composition according to any preceding claim, further characterised in that the carrier material comprises sodium triphosphate.

5. A composition according to any preceding claim, further characterised in that the carrier material comprises a swelling clay.

- 85 6. A composition according to claim 5, further characterised in that the swelling clay is Bentonite.

7. A composition according to any preceding claim, further characterised in that the carrier material and pigment are granulated together to form speckles (as hereinbefore defined).

- 90 8. A composition according to claim 7, further characterised in that the outside of the speckles comprise a coating of a layer of the carrier material.

- 95 9. A composition according to claim 7 or claim 8, further characterised in that the speckles have an average size of from 1 to 1000 microns.

- 100 10. A composition according to claim 9, further characterised in that the speckles have an average particle size of no more than 300 microns.

- 105 11. A composition according to any of claims 7-10, further characterised by containing from 0.1 to 20% by weight of said speckles.

- 110 12. A composition according to claim 11, further characterised by containing from 0.5 to 15% by weight of said speckles.

13. A composition according to claim 12, further characterised by containing from 1 to 5% by weight of said speckles.

- 115 14. A composition according to any preceding claim, further characterised by containing other usual ingredients.

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